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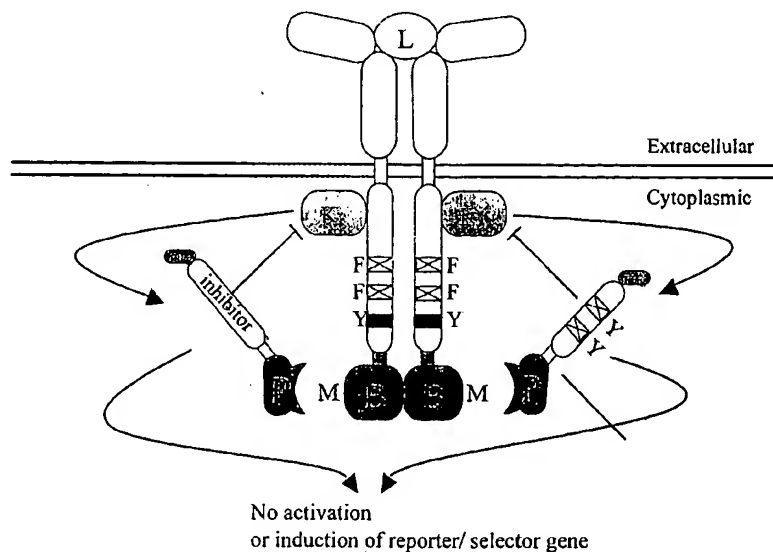
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- (71) Applicant (for all designated States except US): **VLAAMS INTERUNIVERSITAIR INSTITUUT VOOR BIOTECHNOLOGIE VZW** [BE/BE]; Rijvisschestraat 120, B-9052 Zwijnaarde (BE).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **EYCKERMAN, Sven** [BE/BE]; Citadellaan 75, B-9000 Gent (BE). **TAVERNIER, Jan** [BE/BE]; Bottelweg 2, B-9860 Balegem (BE). **VANDEKERCKHOVE, Joël** [BE/BE]; Rode Beukendreef 27, B-8210 Loppem (BE).
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..... with international search report

[Continued on next page]

(54) Title: REVERSED MAMMALIAN PROTEIN-PROTEIN INTERACTION TRAP



(57) Abstract: The present invention relates to a recombinant receptor, comprising a ligand-binding domain and a signaling domain that comprises a heterologous bait polypeptide, which receptor is inactivated by binding of a prey polypeptide to said heterologous bait peptide, either in presence or absence of a ligand binding to said ligand-binding domain. The receptor is activated by addition of a compound that disrupts the bait-prey interaction. The present invention also relates to a method to screen compounds that disrupt compound-compound-binding using said recombinant receptor.



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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

 International Application No
 PCT/EP 02/07419

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C12N15/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, MEDLINE, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 31113 A (RICKLES RICHARD J ;ARIAD PHARMA INC (US)) 28 August 1997 (1997-08-28) the whole document	1-21
X	FASHENA S J ET AL: "The continued evolution of two-hybrid screening approaches in yeast: how to outwit different preys with different baits" GENE, ELSEVIER BIOMEDICAL PRESS. AMSTERDAM, NL, vol. 250, no. 1-2, May 2000 (2000-05), pages 1-14, XP004201578 ISSN: 0378-1119 abstract; figures 1-3 --- -/-	1-21

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.
*** Special categories of cited documents :**

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the International filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

- *T* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

4 December 2002

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20/12/2002

Name and mailing address of the ISA

 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Novak, S

INTERNATIONAL SEARCH REPORT

Int lional Application No
PCT/EP 02/07419

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EYCKERMAN S ET AL: "Identification of the Y985 and Y1077 motifs as SOCS3 recruitment sites in the murine leptin receptor." FEBS LETTERS, vol. 486, no. 1, 2000, pages 33-37, XP001026110 ISSN: 0014-5793 the whole document	1-21
Y	OSBORNE M A ET AL: "THE YEAST TRIBRID SYSTEM - GENETIC DETECTION OF TRANS-PHOSPHORYLATED ITAM-SH2-INTERACTIONS" BIO/TECHNOLOGY, NATURE PUBLISHING CO. NEW YORK, US, vol. 13, 1 December 1995 (1995-12-01), pages 1474-1478, XP002033515 ISSN: 0733-222X abstract; figures 1,2; tables 1,2	1-21
Y	FR 2 782 084 A (CENTRE NAT RECH SCIENT) 11 February 2000 (2000-02-11) the whole document	1-21
Y	WO 00 46406 A (ALPHAGENE INC ;HOFFMANN HEIDI (US); RAPEIJKO PETER (US); HIGGINS K) 10 August 2000 (2000-08-10) abstract	1-21
Y	US 5 525 490 A (POWERS SCOTT ET AL) 11 June 1996 (1996-06-11) the whole document	1-21
Y	LI CAI ET AL: "Leptin receptor activation of SH2 domain containing protein tyrosine phosphatase 2 modulates Ob receptor signal transduction." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES, vol. 96, no. 17, 17 August 1999 (1999-08-17), pages 9677-9682, XP002185670 Aug. 17, 1999 ISSN: 0027-8424 abstract; figures 1-5	1-21
A	WO 00 07014 A (VANDEKERCKHOVE JOEL STEFAAN ;VLAAMS INTERUNIV INST BIOTECH (BE); T) 10 February 2000 (2000-02-10)	
A	EP 1 088 892 A (VLAAMS INTERUNIVERSITAIR INST) 4 April 2001 (2001-04-04)	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 02/07419

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 1-21 (partially)
because they relate to parts of the international Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1-21 (partially)

Present claims 1-21 relate to an extremely large number of possible recombinant receptors, and methods utilizing such polypeptides. In fact, the claims contain so many options, variables, possible permutations and provisos that a lack of clarity (and/or conciseness) within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible. Consequently, the search has been carried out for those parts of the application which do appear to be clear (and/or concise), namely claims 1-21 insofar the claimed molecules relate to those exemplified in the application.

Additionally, present claims 1-21 relate to recombinant receptors, and methods utilizing such polypeptides defined by reference to a desirable characteristic or property, namely that the activation of the claimed polypeptides can be inhibited by binding of a prey polypeptide to a bait peptide.

The claims cover all receptors having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such receptors and methods.

In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the recombinant proteins by reference to a result to be achieved.

Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the molecules and methods exemplified in the application.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 02/07419

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